

Bellwork: 11/30/11

Use substitution  
method:  $(3, 2)$

$$x + y = 5$$

$$x - 5y = -7$$

$$5 - y - 5y = -7$$

$$5 - 6y = -7$$

$$-6y = -12$$

$$y = 2$$

$$x = 5 - y$$

$$x = 5 - 2$$

$$x = 3$$

consistent  
independent

Use graphing  
method:

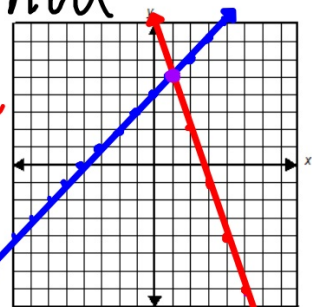
$$x - y = -4$$

$$3x + y = 8$$

$$y = x + 4$$

$$y = -3x + 8$$

consistent  
independent



$$(1, 5)$$

You can ELIMINATE if and only if:

- 1) Variables and equal sign are lined up
- 2) Opposites

Example 1:

$$+ \begin{cases} 1) \begin{cases} 3x - y = 8 \\ 2x + y = 7 \end{cases} \end{cases}$$

$$\begin{array}{r} 5x = 15 \\ \hline 5 \quad 5 \end{array}$$

$$x = 3$$

$$2(3) + y = 7$$

$$6 + y = 7$$

$$y = 1$$

Consistent  
independent

$$(3, 1)$$

$$+ \begin{cases} 2) \begin{cases} x + y = 14 \\ x - y = 4 \end{cases} \end{cases}$$

$$2x = 18$$

$$x = 9$$

$$\begin{array}{l} 9 + y = 14 \\ y = 5 \end{array}$$

Consistent  
independent

$$(9, 5)$$

$$\begin{array}{l} 3) \quad \begin{cases} 3x + 2y = 7 \\ 5x - 2y = 1 \end{cases} \\ \hline 8x = 8 \\ x = 1 \end{array}$$

$$\begin{array}{l} (1, 2) \\ 3(1) + 2y = 7 \\ 3 + 2y = 7 \\ 2y = 4 \\ y = 2 \\ \text{Consistent} \\ \text{Indep.} \end{array}$$

$$1) \begin{cases} 4x + 5y = 6 \\ 4x - 2y = -8 \end{cases} \rightarrow$$

$$\begin{array}{r} -4 - 4 = -8 \\ -8 = -8 \checkmark \end{array}$$

$$4x + 5(2) = 6$$

$$4x + 10 = 6$$

$$4x = -4$$

$$x = -1$$

$$(-1, 2)$$

$$\begin{array}{r} 4x + 5y = 6 \\ -4x + 2y = 8 \\ \hline \end{array}$$

$$7y = 14$$

$$\boxed{y = 2}$$

Consistent  
Independent

$$2) \begin{cases} 3x + 2y = 2 \\ 3x + y = 7 \end{cases}$$

$$\begin{array}{r} 3x + 2y = 2 \\ -3x - y = -7 \\ \hline y = -5 \end{array} \quad (4, -5)$$

$$3x + 2(-5) = 2$$

$$3x - 10 = 2$$

$$3x = 12$$

$$x = 4$$

Consistent  
Independent

$$3) \begin{cases} x - 2y = 2 \\ 3x = 2y + 10 \end{cases}$$

$$\begin{aligned} x - 2y &= 2 \\ 3x - 2y &= 10 \end{aligned}$$

$$4) \begin{cases} 2x + y = 25 \\ 2x = 5y + 7 \end{cases}$$

1) 
$$\begin{cases} 2x + 5y = 15 \\ -4x + 7y = -13 \end{cases}$$



$$2) \begin{cases} 6r + 7t = -15 \\ -3r + t = -6 \end{cases}$$

$$3) \begin{cases} 2x - 7y = 3 \\ 5x - 4y = -6 \end{cases}$$

4) 
$$\begin{cases} 2y - 4x = 18 \\ -5x + 3y = 23 \end{cases}$$

5)  $\begin{cases} 2x + 5y = 12 \\ 2x + 5y = 15 \end{cases}$

6) 
$$\begin{cases} 8x + 4y = -16 \\ 2x + y = -4 \end{cases}$$

Practice:

$$1) \begin{cases} 5x + 3y = 2 \\ 2x + 20 = 4y \end{cases}$$

$$2) \begin{cases} 2x = 5 + 4y \\ 2y = 8 + x \end{cases}$$

$$3) \begin{cases} 4y + 30 = 10x \\ 5x - 2y = 15 \end{cases}$$